UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
EMERGENCY RESPONSE BRANCH
2525 N. SHADELAND AVENUE, SUITE 100
INDIANAPOLIS, IN 46219

REPLY TO ATTENTION OF:
SE-GI

September 26, 2013

Mr. Bradley Adams
SESCO Group
1426 West 29th Street
Indianapolis, IN 46208

TRANSMITTED ELECTRONICALLY

Re: EPA Comments on Work Plan
Kokomo Dump Site (C564)
Kokomo, Indiana
Docket No. V-W-13 C-018

Dear Mr. Adams:

The U.S. Environmental Protection Agency completed its review of the Work Plan, dated September 4, 2013 for the Kokomo Dump Site located at 1130 South Dixon Road in Kokomo, Indiana. These documents were submitted by SESCO Group (SESCO) on behalf of the City of Kokomo to comply with the Administrative Settlement Agreement and Order on Consent (ASAOC) between EPA and the City of Kokomo.

EPA disapproves the Work Plan as submitted, and requires the City of Kokomo to amend the document in accordance with the attached comments. A revised Work Plan must be submitted by 5 p.m. Eastern time within seven business days of receipt of this letter, or October 7, 2013, as specified in Section VIII, 17b of the ASAOC.

The enclosed comments must be addressed. If the comments are not adequately addressed, EPA may exercise its right to modify the document and provide the revised document to you for implementation or direct you to make specified modifications to the document.

If you believe that any changes are necessary other than those directed by EPA's enclosed comments, those changes must be discussed with, and approved by, EPA's On-Scene Coordinator (OSC) prior to re-submittal of the document. Those discussions may be memorialized in a progress report or other communication with EPA's OSC. In addition, all changes made to the document, other than those specifically at the direction of EPA, must be specified in writing to EPA upon re-submittal of the document.

If you have any questions concerning this matter, or would like to discuss the attached comments in detail, please contact me at 317-417-0980.

Sincerely,

Shelly Lam, LPG
Federal On-Scene Coordinator

cc: William Pickard, SESCO Group
Brent Graves, SESCO Group
David Guevara, Taft Stettinius & Hollister, LLP
Lawrence McCormack, City of Kokomo
Maria Gonzalez, EPA Region 5
James Ursic, EPA Region 5
Ida Levin, EPA Region 5
Duane Newell, EPA ERT
Stacey DeLaReintrie, OTIE
File

Work Plan

General Comments

1. There is a substantial lack of detail in the Work Plan, particularly with regards to the specific removal actions. The Work Plan does not sufficiently describe detailed removal actions nor does it adequately address the work to be performed outlined in Section VIII of the Administrative Settlement Agreement and Order on Consent (ASAOC). For example, it is unclear why the planned activities only include removal of six drums and do not include excavation of contaminated soil. As a result, the Work Plan is rejected in whole. The Work Plan must be revised to comply with the ASAOC and must be consistent with the guidance documents the Environmental Protection Agency previously provided to SESCO Group (SESCO).

2. One of the requirements of the ASAOC is to determine the nature and extent of the release or threatened release of hazardous substances, pollutants, or contaminants at and from the site. In performing this investigation, it will be necessary gather sufficient data, samples, and other information to fully characterize the nature and extent of the contamination to support the removal action. The Work Plan should address preparing a data gap analysis or a conceptual site model.

3. The Work Plan should include a description of the data already available, which highlights the areas of known contamination and the levels detected. A summary of any previous response work should be included. Tables should be included to display the minimum and maximum levels of detected contaminants across the Site. Appropriate figures should also be provided.

4. The Work Plan, Health and Safety Plan (HASP), and Quality Assurance Project Plan (QAPP) must address all the work to be performed. Currently, there are significant discrepancies in the scope of work between the documents.

5. The Work Plan must establish cleanup action objectives, specifying contaminants and media of concern, potential exposure pathways, and cleanup goals. In accordance with 40 CFR § 415(j), "removal actions pursuant to CERCLA section 106 shall, to the extent practicable considering the exigencies of the situation, attain applicable or relevant and appropriate requirements (ARARs) under federal environmental or state environmental or facility site laws." It will be necessary to apply to Mr. Rex Osborn, Section Chief, Federal Programs Section at the Indiana Department of Environmental (IDEM) for identification of ARARs.

6. The Work Plan must be a complete document. It may refer to the HASP and QAPP, but the Work Plan must include all necessary elements outlined in the *Generic Work Plan Outline and Site Safety Plan for Potentially Responsible Parties* (PRPs) (June 1992) that EPA previously provided to SESCO.

Specific Comments

1. Section 1.1, Introduction

It must be noted that all work must be conducted in a manner consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 Code of Federal Regulations (CFR) Part 300.

2. Section 1.2, Site History

a. The site history section should discuss past owners and operators.

b. On page 2 in the first paragraph, SESCO states that "[i]t is presumed that a portion of the property to the south of the Site was part of the dump site." The Work Plan should address if the property to the south will be included in the removal action.

3. Section 2.3, Site Security

As the facility is a yard waste recycling center open to the public, describe the site security measures that will be employed during removal actions to ensure (1) the health and safety of site visitors and employees, and (2) that the public is restricted from the work zones.

4. Section 2.6, Site Preparation

a. Include a discussion on utility clearance.

b. In paragraph 3, the Work Plan states that "the City of Kokomo will provide the labor and equipment to remove" brush and other yard waste. Brush removal is likely to disturb contaminated surface soil, potentially exposing site workers either through direct contact with contaminated soil or by inhalation or ingestion of fugitive dust. It should be specified whether the City's laborers have Hazardous Waste Operations and Emergency Response (HAZWOPER) training and are covered by a medical monitoring program in accordance with 29 CFR 1910.120. 1910.120(e)(3)(i) states that "[g]eneral site workers (such as equipment operators, general laborers and supervisory personnel) engaged in hazardous substance removal or other activities which expose or potentially expose workers to hazardous substances and health hazards shall receive a minimum of 40 hours of instruction off the site, and a minimum of three days actual field experience under the direct supervision of a trained experienced supervisor." Regardless of the task, the site is a hazardous waste site and all activities and personnel are regulated under the HAZWOPER standard.

c. A geophysical survey is described in Paragraph 4. The Work Plan must include more specific information on the geophysical survey, including the methods to be used, the makes and models of equipment to be used, the area to be surveyed, and the methodologies and software that will be used to process the data. It is preferable to have more than one geophysical method so that anomalies can be confirmed by a secondary method. The Work Plan should clearly specify the following, and indicate whether that information is known, unknown or assumed:

- What the target(s) are: drums, tanks, contaminate plume, etc;
- Physical condition of targets (crushed, whole, deteriorated to point of leaking, etc.);
- What targets are made of: metal (ferrous or non ferrous), plastic, etc;
- What targets may contain;
- How long targets were buried;
- An estimate of how many target(s);
- What depths would targets most likely be located (consider depth to ground water, boom lengths of heavy equipment available to cover or bury targets or types of bulldozers other equipment that could bury such objects, etc.);
- Targets scattered, piled together, in linear trenches, etc;
- What grid spacing will be applied for each type of tool, and why;

- How surface objects will be documented and mapped that could interfere with data collection and interpretation (overhead-subsurface power lines, surface debris, railroad tracks, fence lines, buildings, vehicles, reinforced concrete pads, etc.);
- How grid lines will be established and recorded to collect data so that such a survey can be duplicated, as precisely as possible, at a later date by other commercial, State or Federal entities if the need arises;
- Such information should reference a base point(s), i.e. utility poles, street intersections, or other permanent objects tied to the grids; and
- For the final report, note how data will be displayed, such as contour maps, base maps, traverse maps, map of surface debris or other interferences, etc.

5. Section 3.1, Sampling Objectives

The sampling objectives only include sampling surface soil. Surface soil is not defined and it is unclear how deep soil sampling will be conducted. Section VIII of the ASAOC describes the work to be performed. At a minimum, removal actions must include "[d]etermining the extent of buried drums and contamination in soil," in accordance with Section VIII, Paragraph 16c. Section IV indicated that high concentrations of lead and other chemicals were detected in deeper soils (6 to 8 feet below ground surface [bgs]). As such, the Work Plan must address determining the extent of contamination in soil, not just surface soil.

6. Section 3.3, Sampling Plan

a. See above comments regarding surface soil.

b. The sampling plan must include the following missing elements:

- Maps showing sampling locations;
- Description of sample identification system;
- List of sampling equipment to be used;
- Description of waste sampling;
- Description of sampling procedures for each matrix;
- Sampling procedures that ensure representative samples;
- Types and numbers of sample containers;
- Types and quantities of preservatives; and
- Description of procedures to maintain sample chain-of-custody.

c. The Work Plan must describe the sampling design and rationale. It is unclear why 20 sample locations were proposed and where those locations are. Refer to the QAPP comments on sampling design for additional information to be included.

d. One objective of the removal action is to dispose of drums and contaminated soil. The Work Plan must describe drum and waste sampling procedures and sampling methods.

e. Paragraph 1 states that "a duplicate and a matrix spike/matrix spike duplicate [MS/MSD] sample will also be collected." One duplicate sample is insufficient. Ten percent (10%) of samples should be duplicates and 5% should MS/MSDs.

7. Section 3.4, Sampling Shipping

Section 3.4 is missing from the Work Plan. This section should describe sample shipping procedures. Sample shipping is subject to 49 CFR, Parts 171-179 or International Air Transport Association (IATA) dangerous goods regulations.

8. Section 3.5, Analysis

Section 3.5 is missing from the Work Plan. Section 3.5 must discuss laboratory analysis, including the laboratory performing the work, target compounds, and analytical methods. It is recommended that this information be provided in a table.

9. Section 4.0, Removal Activities

a. Section VIII of the ASAOC describes the work to be performed. Removal actions must address all items in the Work to be Performed in Section VIII of the ASAOC, including "[d]etermining the extent of buried drums and contamination in soil." The removal activities identified in the Work Plan are limited to removal of six drums and surrounding soil. Revise the proposed removal activities to comply with the ASAOC.

b. EPA anticipates that removal actions that comply with the ASAOC will take more than one field day to complete.

c. Describe drum handling procedures. Handling drums and containers is regulated by 29 CFR 1910.120(j). Further technical guidance is available in National Technical Information Service (NTIS) PB-87-110-672, *Guidance Document for Cleanup of Surface Tank and Drum Sites*, and PB-86-165-362, *Drum Handling Practices at Hazardous Waste Sites*. Additional guidance, as well as handling procedures for buried drums that are corroded or contain product, can be obtained from the Office of Solid Waste and Emergency Response (OSWER) Directive 9220.7-01.

d. The third paragraph, second sentence states that "SESCO will assume the drum contents will be considered hazardous waste." Drums should be sampled for waste profile analysis. Additionally, results of EPA's investigation-derived waste (IDW) drums were sampled, and results presented in the Site Assessment Report indicate that these two drums were non-hazardous.

e. Because drilling and/or excavation will be required as part of the removal actions, the Work Plan should address utility clearance in this section or under Site Preparation. Utility clearance should also be added to the schedule.

f. The Work Plan should address contingencies and preparedness to address situations such as spills occurring from liquids or broken drums, etc. that may arise while removing as well as while transporting drums to the staging area.

10. Section 4.1, Cleanup Criteria

Section 4.1 was not included in the Work Plan. The Work Plan must describe cleanup criteria.

11. Section 4.2, Site Cleanup Activities

Section 4.2 was not included in the Work Plan. Site cleanup activities must be discussed. At a minimum, the following topics should be included:

- Buried waste and waste migration;

- Sampling of soil and other wastes;
- Air monitoring during removal actions;
- Treatment of hazardous waste, if applicable;
- Cleanup of drums and other containers;
- Dust control during removal actions; and
- Drum handling procedures.

12. Section 4.3, Waste Disposal

Section 4.3 was missing from the Work Plan. The Work Plan must include a table of waste streams and corresponding disposal facilities. If disposal facilities have not been determined, disposal alternatives and decision criteria can be presented in this section. Additionally, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121 (d)(3) requires that hazardous substances, pollutants, or contaminants transferred off-site for treatment, storage, or disposal must be transferred to a facility that is in compliance with the Off-Site Rule and Resource Conservation and Recovery Act (RCRA) Sections 3004 and 3005, as amended, and other applicable laws or regulations. **All material containing hazardous substances, pollutants, or contaminants removed from the site, must be disposed of a facility pre-approved by EPA's OSC.** Also note that regulations for packaging, marking, labeling, and shipping hazardous materials and wastes are promulgated by the U.S. Department of Transportation (DOT) and described in 49 CFR Parts 171-179.

13. Section 5.0, Site Restoration/Project Close-Out Activities

Section 5.0, Site Restoration/Project Close-Out Activities, was not included in the Work Plan. This section must describe site restoration and project close-out activities. At a minimum, the Work Plan must discuss:

- Demobilization procedures;
- Site restoration activities;
- Post-removal site control in accordance with 40 CFR 300.415(l); and
- Any monitoring, operations and maintenance, and long-term sampling to be conducted, if necessary.

14. Section 5.2, Project Schedule

The project schedule must be revised to address EPA's comments, and should provide an estimate for each removal activity, disposal analysis, and disposal.

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Site-Specific Health and Safety Plan

General Comments

1. The HASP does not address all of the work to be performed as outlined in the ASAOC. The HASP must include all work to be performed and should be consistent with the Work Plan. There are significant discrepancies in the scope of work between the documents.

2. It is unclear if the HASP has been approved by the contractor as there is no signature/approval cover page.

3. The HASP should include a written personal protective equipment (PPE) program, which should be part of SESCO's safety and health program. The PPE program should address the elements listed below. When elements are provided by the manufacturer of a piece of equipment and are attached to the plan, they need not be rewritten into the plan as long as they adequately address the procedure or element.
    - PPE selection based upon site hazards;
    - PPE use and limitations of the equipment;
    - Work mission duration;
    - PPE maintenance and storage;
    - PPE decontamination and disposal;
    - PPE training and proper fitting;
    - PPE donning and doffing procedures;
    - PPE inspection procedures prior to, during, and after use;
    - Evaluation of the effectiveness of the PPE program; and
    - Limitations during temperature extremes, heat stress, and other appropriate medical considerations.

4. The HASP should include a section on Job Hazard Analysis (JHA). The section should include discussions or tables presenting job tasks, levels of PPE, anticipated hazards, sources of hazards, and control measures. For level of PPE, if Level C is to be used, specify the type of cartridges and how cartridge selection was determined. If engineering controls will be used, include applicable Standard Operating Procedures (SOP).

5. The HASP must include a section on hazard communication, consistent with 29 CFR § 1910.1200. It should include material safety data sheets (MSDS) for anticipated chemical hazards and materials brought on-site; procedures on container labeling; and employee training on hazard communication.

Specific Comments

1. **Section 1.2, Organization/Responsibilities**
   While private employers are directly responsible for the health and safety of their own employees, the On-Scene Coordinator (OSC) has overall responsibility for addressing worker health and safety concerns at a removal site, in accordance with 40 CFR § 300.145(l). The organization/responsibilities section, including the organization chart, should be updated to reflect the above information.

2. **Section 1.2.1, SESCO Project Manager**

This section indicates that modifications to the Work Plan and HASP require approval of SESCO's Senior Project Management and/or Chief Operating Officer. Revise the HASP to read that all changes to the Work Plan require the approval of EPA, and all changes to the HASP must be reviewed by EPA.

3. **Section 1.2.3, SESCO Site Health & Safety Officer (SSO)**
   One of the responsibilities of the SSO should checking and assuring that all site personnel have appropriate HAZWOPER and related certifications, are field eligible, and that their certifications are always maintained on-site.

4. **Section 1.3.2, Modifications to the HASP**
   See comment above regarding modifications to the HASP. The OSC must review all changes to the HASP before modifications are implemented.

5. **Section 3.1, Project Description**
   a. The Scope of Work outlined in the HASP does not include all items in Section VIII of the ASAOC, which describes the work to be performed. All work to be performed must be addressed in the HASP. Additionally, some planned activities, such as test pit excavation, are not included in the bulleted list on Page 6.

   b. It is likely that drum removal will include more than two drums. The HASP should be updated to reflect that more than two drums may be encountered and removed. Additionally, this quantity is inconsistent with the Work Plan.

   c. Removal activities will include subsurface soil sampling; excavation of contaminated soil; and waste sampling. Add sections addressing each of these tasks.

6. **Section 3.1.3, Brush Removal**
   See the work plan comments regarding HAZWOPER requirements for brush removal. Regardless of the task, the site is a hazardous waste site and all activities and personnel are regulated under the HAZWOPER standard.

7. **Section 3.1.4, Drum Removal**
   Drums removal is regulated under 29 CFR § 1910.120(j). Ensure that this section is compliant with the regulations. Additionally, ensure that drum removal procedures are consistent with *Drum Handling Practices at Hazardous Waste Sites* (EPA/600/2-86/013).

8. **Section 3.1.6, Test Pit Excavation**
   This section states that test pit excavation is "not planned during this scope of work." Determining the extent of contamination in soil and removing contaminated soil are required under the ASAOC. As such, the HASP should be amended to plan for these activities.

9. **Section 4.1, Chemical Contaminants of Concern**
   Add a table addressing chemical hazards, including chemical name, media, permissible exposure limit (PEL), threshold limit value (TLV), route of entry, and symptoms, both acute and chronic.

10. **Section 4.2, Chemical Hazard Control**

The second bullet indicates that dust suppression will be conducted to minimize exposure to particulate matter. EPA recommends including particulate matter air monitoring in the Air Monitoring Plan.

11. Section 5.0, Physical Hazards and Control

The HASP should include subsections on the following physical hazards:

- Electrical;
- Ergonomics;
- Flammable vapors and gases;
- Fires and explosions;
- Waste bulking (if necessary); and
- Illumination.

12. Section 5.4, Working Around Heavy Equipment

a. During heavy equipment operation, a ground spotter should be used to ensure worker health and safety and to look for hazards in excavations.

b. Equipment should not exceed capacities and load limits.

13. Section 5.5, Excavation Hazards

If sloping is to be used in excavations, the soil must be evaluated by a Competent Person, as outlined by 29 CFR Subpart P, Appendix A.

14. Section 5.6, Drum Handling/Sampling/Storage

a. The third bullet indicates that loose waste materials with high PID/FID readings will be placed into drums. Discuss how loose waste materials that do not have high PID/FID readings will be handled.

b. The HASP does not address several potential hazards associated with drum handling, sampling, and storage, including radiation, corrosion, leaking, flammable contents, fire or explosion, and over-pressurization.

15. Section 5.6.1, Drum Opening and Sampling Procedures

This section should include additional discussion of field screening beyond air monitoring. For example, will field hazard categorization (hazcat) be conducted? If so, information on hazcat procedures should be provided, including SOPs.

16. Section 5.10, Inclement Weather

Discuss how long site work will be suspended following lightning.

17. Section 6.0, Air Monitoring

a. Discuss frequency and types of air monitoring and monitoring equipment; personnel monitoring; fenceline monitoring. Include SOPs for use of, maintenance, and calibration of monitoring equipment. The statement in Section 8.1 of the QAPP is not adequate for field monitoring equipment.

b. Include a table for health hazard monitoring. This should include activity, target analyte, monitoring instrument, monitoring frequency, action levels, and actions to be taken, i.e. upgrading or downgrading PPE, and rationale. Include ionizing radiation.

18. Section 6.1.3, Draeger Tubes

Specify chemicals that will be monitored with the Draeger tubes, their detection levels, and related action levels for upgrading or downgrading personal protection. Also, discuss the rationale for selecting these chemicals for monitoring by Draeger tubes.

19. Section 6.2, Personal Air Sampling

Personnel air sampling may be necessary for metals exposure to determine the concentrations that PPE levels can be upgraded or downgraded.

20. Section 7.3, Level of Protection Assigned to Tasks

a. It is recommended that the subsections be replaced with a discussion or tables for the JHAs. The JHAs should include discussions or tables presenting the job tasks, levels of PPE, anticipated, hazards, sources of hazards, and control measures. For level of PPE, if Level C is to be used, specify the type of cartridges and how cartridge selection was determined.

b. Add the following tasks to these discussions: subsurface soil sampling, soil excavation, waste sampling, and waste disposal.

21. Section 7.3.4, Buried Drum Removal and Sampling & Test Pit Excavation

a. The HASP describes sampling drums and test pits in "Modified Level C (with the field staff having air-purifying respirators available if needed)." EPA does not recognize a "modified Level C." Level C is a level of respiratory protection that includes the use of air-purifying respirators (APR) or powered air-purifying respirators (PAPR). What is described as "modified Level C" is Level D with a contingency to upgrade to Level C. Drums with unknown solid materials must be sampled in Level C PPE, at a minimum level of protection. Drums with unknown liquid contents must be sampled in Level B PPE. All other activities may be performed in Level C or D PPE, based on the activity, and air monitoring and sampling results.

b. Test Pit Excavation is discussed in the HASP, but not the Work Plan. The HASP must include all work to be performed outlined in the Work Plan, and the Work Plan must include all work to be performed outlined in the HASP. There should not be significant discrepancies in the scope of work between the two documents.

22. Section 8.2.1, Exclusion Zone

Discuss if barriers or fencing will be used to delineate this zone.

23. Section 8.2.2, Contamination Reduction Zone

Discuss if signage, barriers, or fencing will be used to delineate this zone.

24. Section 8.4.2, Large Equipment Decontamination

This section states that "it is not anticipated that large equipment will require decontamination." As the scope of work includes removing contaminated soil, this section should address large equipment decontamination.

25. Section 9.0, Medical Monitoring and Training Requirements

Because work in Levels B or C are anticipated, discuss fit testing requirements for respirators and face masks.

26. Section 9.2, Health and Safety Training

Address minimum safety requirements for all personnel and how that will be documented. Also discuss who and how many people are required to have first aid and CPR training.

27. Section 10.0, Emergency Contingency Plan

This section states that "SESCO personnel will not participate in any emergency response where there are potential safety or health hazards." If SESCO does not anticipate responding to emergencies or spills on-site, discuss who will.

28. Section 10.2, Alarm Systems/Emergency Signals

The emergency alarm/notification system is not clear and hand signals are not specified.

29. Section 10.4, Rescue and Medical Duty Assignments

a. Verify that the designated hospital has chemical trauma capabilities.

b. Identify and/or label markers "A" and "B" on the hospital route map.

30. Spill Response

Include SOPs for spill response.

Quality Assurance Project Plan

General Comments

1. There is a substantial lack of detail in the QAPP. The QAPP is generic and is not specific to the Kokomo Dump Site. In accordance with Paragraph 17a of the ASAOC, the QAPP must be consistent with "EPA Requirements for Quality Assurance Project Plans QA/R-5 (EPA/240/B-01/003)," March 2001, Reissued May 2006. The following guidance may be used in conjunction with the requirements above:

    - "EPA Guidance for the Quality Assurance Project Plans QA/G-5 (EPA/240/R-02/009)," December 2002.
    - "Guidance on Choosing a Sampling Design for Environmental Data Collection EPA QA/G-5S," December 2002.

2. Many of the essential elements were missing from the QAPP and must be added. These include:

    - Problem Definition/Background
    - Project/Task Description
    - Quality Objectives and Criteria for Measurement Data
    - Special Training/Certifications
    - Documents and Records
    - Sampling Methods
    - Inspection/Acceptance of Supplies and Consumables
    - Non-direct Measurements
    - Data Management
    - Assessments and Response Actions
    - Reports to Management
    - Reconciliation with User Requirements

3. Numerous references are made in the QAPP to IDEM's policies, procedures, cleanup criteria, etc. The ASAOC was issued by the U.S. EPA. As such, the work to be performed must be conducted in accordance with EPA regulations, statues, policies, procedures, and guidance documents.

4. The individual(s) responsible for data management for lab and field data should be identified.

5. The process for data archival and retrieval should be described.

Specific Comments

1. **Title Page**
   Approving officials for a QAPP usually include the organization's Technical Project Manager and QA Manager, and the EPA Project Manager and QA Manager. SESCO's project manager and QA manager should be added to the approval page. In addition, replace "EPA Region 5 Risk Management" with "EPA On-Scene Coordinator."

2. **Section 2.0, Introduction**

This section states that "[a]ll QA/QC procedures presented in this QAPP were developed in accordance with. . . IDEM requirements. . ." Note that the work to be performed under the ASAOC must be conducted in accordance with EPA policies, procedures, and guidance documents.

3. **Section 3.1, Data Quality Objectives (DQO)**
   a. This section outlines levels of data quality defined by IDEM. However, this section appears to confuse DQOs with data validation levels. The DQO planning process is a seven-step process that guides decision-makers and staff to a plan for the resource-effective acquisition of environmental data. Until the QAPP adequately addresses the DQO process, developing the QAPP and Work Plan will be difficult. The QAPP must use EPA's *Systematic Planning Using the Data Quality Objectives Process* (EPA QA/G-4).

   b. Analytical data validation must be addressed in a separate section and must be validated using EPA guidelines. Refer to the following documents regarding data validation:

      - *Guidance on Environmental Data Verification and Data Validation,* EPA QA/G8 (2002)
      - *USEPA Contract Laboratory Program, National Functional Guidelines for Organic Data Review,* EPA 540/R-99/008 (1999)
      - *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review,* EPA 540/R-94/013 (1994)

4. **Section 3.2, Sample Network Design & Rationale**
   a. This section provides minimal information on collecting soil samples beneath two drums and 20 surface soil samples. This approach will not determine the extent of contamination, as required by the ASAOC. The QAPP does not provide information on sample locations or the rationale for those locations. Guidance on selecting the appropriate design may be found in Chapter 2 of "Guidance for Choosing a Sampling Design for Environmental Data Collection (EPA QA/G-5s)," 2002.

   b. Key questions to be considered in sample design including the following. The answers to these questions should be considered during the planning process and help to determine allocation of resources for obtaining samples.

      - Is this project to be comparable with previous sampling or analytical efforts, or with a health-based or regulation standard?
      - Can samples or measurements be taken according to a probability-based design?
      - Is the objective of the sample to estimate an average or to find a hot spot?
      - Is there a reference or background population that can be used as a comparison to the target population?
      - Will sampling sites be chosen ahead of time or in the field based on visual or other evidence; and, if the latter, what are the criteria for selection?
      - Will a network of sampling sites be used that will be visited periodically or where sampling will be performed continuously?
      - Do all the samples need to be taken simultaneously?
      - Is the target population approximately homogeneous or is it heterogeneous in nature needing stratification or division into approximately homogeneous areas?
      - Can samples be composited?

c. After determination of the type of sampling design, the QAPP should also include the following elements:

- Number of samples;
- How many sampling locations;
- Number of samples at each location;
- Number of composites (if any);
- Support for the sample (the area or part of the target population that a single sample is supposed to represent), number of QC samples (field replicates, etc.); and,
- Plan for obtaining replacement samples essential to the integrity of the project.

d. Indicate how these sampling sites will be located (for example, through use of a randomized grid or by using a global positioning system [GPS]).

5. **Section 3.3, Parameters to be Tested and Frequency**

a. This section and Table 1 should identify the analytical procedures to be followed in the field. The table should include each matrix, concentration level, and analytical parameter. The table should include Project Required Action Limits and quantitation limits.

b. If an EPA standard method is to be followed, then simply cite the number and date. Describe and justify any deviations here. Also include any specific method performance specifications. Include not only soil sampling but waste sampling too.

c. Quality control (QC) is addressed briefly in this section. Other blank samples may be required dependent upon field activities; these may include bottle, field, reagent, rinsate (or equipment), and trip blanks. Additionally, one in ten field samples must be a replicate sample, or duplicate. As such, collecting one duplicate per 20 samples is insufficient.

6. **Section 3.4, Intended Data Usage and Data Quality Objectives**

This section discusses cleanup levels, not intended data usage and DQOs. The section refers to using "IDEM RCG Soil MTG and Groundwater Tap RSLs, respectively" for soil and groundwater. It is unclear why these cleanup criteria were selected as no discussion was provided.

7. **Section 3.5, Project Schedule**

a. The Project Schedule must be updated to comply with the work to be performed under the ASAOC.

b. The Project Schedule should be in graphical or tabular format.

8. **Section 4.0, Project Organization & Responsibility**

a. This section must include <u>all</u> individuals involved with the major aspects or phases of the project, and their project responsibilities. At a minimum, this section should identify EPA's project manager, EPA's QA Manager, the Respondent, and SESCO's QA Manager. Other individuals may include those who will use the information or make decisions based on that information, such as database researchers, data processors or modelers, or contractors' and subcontractors' staff.

b. The organizational chart does not identified independence of the QA manager from the unit generating data.

9. Section 5.0, Quality Control (QA) Objectives for Measurement Data

This section is very generic. The actual QC objectives are not stated. The QAPP should identify performance/measurement criteria for all information to be collected and acceptance criteria for information obtained from previous studies, including project action limits and laboratory detection limits of each parameter of interest.

10. Section 5.1, Level of Quality Control Effort

a. Describe all the project quality control checks that will be used, not just field quality control. EPA recommends including a table of quality control checks, frequency of these checks, and the QC activity control limits.

b. This discussion should include use of bottle blanks, reagent blanks, field splits, and equipment rinsate blanks for non-dedicated field equipment.

c. Discuss the laboratory's QC measures including surrogate spikes, calibration check samples, laboratory splits, laboratory replicates. Additionally, as noted previously, duplicates/field replicates should be collected at a frequency of 10%. One duplicate per 20 samples is insufficient.

d. This section should also discuss corrective action measure to be taken if QC control limits are exceeded.

11. Section 5.2, QA Objectives Defined

Precision, accuracy, completeness, representativeness, and comparability are defined in the subsections, but there are no discussions as to how these concepts apply to the project.

12. Section 6.0, Sampling Procedures

a. Include discussions on sampling sub-surface soil, drums, and waste streams.

b. Include the following information in this section:

- Detail the type and total number of sample types/matrix or test runs/trials expected and needed;
- Discuss what to do if sampling sites become inaccessible;
- Identify project activity schedules, such as each sampling event, times samples should be sent to the laboratory, etc;
- Specify what information is critical and what is for informational purposes only;
- Identify all sampling SOPs by number, date, and regulatory citation, indicating sampling options or modifications to be taken;
- Indicate how each sample/matrix type should be collected; and
- Indicate how samples are to be homogenized, composited, split, or filtered, if needed.

13. Section 6.1, Surface Soil Sampling Procedures

This section should reference SESCO's SOP for surface soil sampling. Discuss if samples will be screened with a x-ray fluorescence (XRF) detector since metals are a primary site contaminant.

14. **Section 6.2, Holding Times, Table 2**
Add waste samples to the table.

15. **Section 7.1.1, Chain of Custody Field Procedures**
Examples of the Chain of Custody form are missing from the QAPP.

16. **Section 7.1.4, Sample Identification and Labeling**
Describe the sample identification/numbering procedures.

17. **Section 8.1, Field Instrument Calibration**
    a. Reference field instrument calibration SOPs and provide copies in an appendix.

    b. Describe calibration criteria for each instrument. For example, how will it be determined if the instrument has failed the field calibration?

18. **Section 8.2, Laboratory Instrument Calibration**
Reference the laboratory's QAPP.

19. **Section 9.1, Field Analytical Procedures**
At a minimum, this section should list by number and name the field analytical SOPs to be used.

20. **Section 9.2, Laboratory Analytical Procedures**
The analytical SOPs used for this project should be included in the QAPP. Pace's Laboratory Quality Assurance Manual does not include any SOPs; it provides only laboratories policies and general procedures.

21. **Section 10, Internal QC Checks**
This section should provide more details about what should be done when control limits are exceeded, and how the effectiveness of control actions will be determined and documented.

22. **Section 11.1, Data Reduction**
This section references using IDEM RCG cleanup goals. Refer to previous comments on cleanup criteria.

23. **Section 11.2, Data Validation**
Ensure that data validation is conducted in accordance with EPA's guidelines. State the criteria for deciding to accept, reject, or quality project data in an objective and consistent manner.

24. **Section 12, Performance & System Audits**
This section should include the following information:

- The number, frequency and type of audits;
- The individuals responsible for conducting audits should be identified;
- To whom the audit information should be reported; and
- How the corrective actions will be addressed and by whom.